110.1 - Foods and Beverages (liquid and powder forms)

These SRMs are for validation of analytical procedures and calibration of apparatus used in the analysis of trace elements and other analytes in foods and related products.

Technical Contact for SRMs: 1570a and 1577b rolf.zeisler@nist.gov
Technical Contact for SRMs: 1549, 1566b, 1568a, 2384, 2385 and 3276 katherine.sharpless@nist.gov

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SRM	1549	1566b	1567a	1568a	1570a	1577c	1953	1954	2384	2385	3276	3278
Description	Non-Fat Milk Powder	Oyster Tissue	Wheat Flour	Rice Flour	Trace Elements in Spinach Leaves	Bovine Liver	Organic Contaminants in Non-Fortified Human Milk	Organic Contaminants in Fortified Human Milk	Baking Chocolate	Slurried Spinach	Carrot Extract in Oil	Tocopherols in Edible Oils
Unit of Issue	(100 g)	(25 g)	(80 g)	(80 g)	(60 g)	(20 g)	(5 vials x 5 mL)	(5 vials x 5 mL)	(5 X 91 g)	(4x70 g)	(5 ampoules)	(5 x 1 mL)
Element (Concentrations are in mg/kg, unless noted by a single asterisk for mass fraction, in %)												
Aluminum	(2)	197.2	5.7	4.4	310							
Antimony	(0.00027)	(0.011)		(0.0005)		(0.00313)						
Arsenic	(0.0019)	7.65	(0.006)	0.29	0.068	0.0196						
Barium		(8.6)										
Bromine	(12)		(6)	(8)								
Boron		(4.5)			37.6							
Cadmium	0.0005	2.48	0.026	0.022	2.89	0.0970						
Calcium	1.30*	0.0838*	0.0191*	0.011*		131	(257)	(257)	840	624		
Cesium						(0.0217)						
Chlorine	1.09*	0.514*	(565)	(300)		(0.287*)						
Chromium	0.0026					0.300						
Cobalt	(0.0041)	0.371	(0.006)	(0.018)								
Copper	0.7	71.6	2.1	2.4		275.2	(0.268)	(0.268)	23.2	0.9		
Fluorine	(0.20)											

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Element (Concentrations are in mg/kg, unless noted by a single asterisk for mass fraction, in %)												
Iodine	3.38		(0.0009)	(0.009)								
Iron	1.78	205.8	14.1	7.4		197.94	(0.194)	(0.194)	132	17		
Hydrogen		(7.2)				7.35*						
Lead	0.019	0.038	(< 0.020)	(< 0.010)	(0.20)	0.0628						
Lithium						(12)						
Magnesium	0.120*	0.1085*	0.040*	0.056*		620	(32.4)	(32.4)	2570	368		
Manganese	0.26	18.5	9.4	20.0	75.9	10.46	(0.040)	(0.040)	20.3	3.8		
Mercury	0.0003	0.0371	(0.0005)	0.0058	0.030	(0.00536)	(0.000101)	(0.000101)				
Molybdenum	(0.34)		0.48	1.46		3.30						
Nickel		1.04		(0.16)	2.14	0.0445						
Nitrogen		(7.6)*			(6.06)*	(10.30*)						
Phosphorus	1.06*		0.134*	0.153*		(1.175*)	(135)	(135)	3330	323.7		
Potassium	1.69*	0.652*	0.133*	0.1280*		1.023*	(462)	(462)	8200	3650		
Rubidium	(11)	3.262	0.68	6.14		(35.3)						
Selenium	0.11	2.06	1.1	0.38	0.117	2.031						

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Element (Concentrations are in mg/kg, unless noted by a single asterisk for mass fraction, in %)												
Silicon	(					(6)						
Silver	(< 0.0003)	0.666				0.0059						
Sodium	0.497*	0.3297*	6.1	6.6		0.2033*	(127)	(127)	40	47		
Strontium		(6.8)			55.6	0.0953						
Sulfur	0.351*	0.6887*	0.165*	0.120*	(0.46)*	0.749*						
Tellurium				(< 0.002)								
Thorium		0.0367			0.048							
Tin	(< 0.02)	(0.031)		(0.0033)		(0.0047)						
Uranium		(0.2550)	(0.0003)	(0.0003)	(0.155)							
Vanadium		0.577	(0.011)	(0.007)	0.57	0.00817						
Zinc	46.1	1424	11.6	19.4	82				36.6	8.4		
Carotenoids and Tocopherols(Concentrations in mass fraction in ug/g												
total cis-ß-Carotene											(13.9)	
total ß-Carotene											(35.5)	
a-Tocopherol												290.1

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Element (Concentrations are in mg/kg, unless noted by a single asterisk for mass fraction, in %)												
ß-Tocopherol												11.38
y-Tocopherol											443	111.5
8-Tocopherol											373	28.8
trans-a-Carotene											(3.14)	
trans-ß-Carotene											(21.4)	
Selected Fatty Acids (as Triglycerides) (Concentrations expressed in mass fraction %)												
Hexadecanoic Acid (C16:0)(Palmitic Acid)											1.36	
(Z)-9-Hexadecenoic Acid (C16:1 n-7)(Palmitoleic Acid)											0.0147	

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Heptadecanoic Acid (C17:0)											0.0213	
Octadecanoic Acid (C18:0)(Stearic Acid)											1.14	
(Z)-9-Octadecenoic Acid(C18:1 n-9)											3.68	
(Z)-11-Octadecenoic Acid (C18:1 n-7)(Vaccenic Acid)											0.519	
(Z,Z)-9,12-Octadecenoic Acid (C18:2 n-6)(Linoleic Acid)											6.64	
(Z,Z,Z)-9,12,15-Octadecatrienoic Acid (C18:3 n-3)(Linolenic Acid)											0.816	
Eicosanoic Acid (C20:1)(Arachidic Acid)											0.0578	

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Description	**Non-Fat Milk Powder**	**Oyster Tissue**	**Wheat Flour**	**Rice Flour**	**Trace Elements in Spinach Leaves**	**Bovine Liver**	**Organic Contaminants in Non-Fortified Human Milk**	**Organic Contaminants in Fortified Human Milk**	**Baking Chocolate**	**Slurried Spinach**	**Carrot Extract in Oil**	**Tocopherols in Edible Oils**
Unit of Issue	**(100 g)**	**(25 g)**	**(80 g)**	**(80 g)**	**(60 g)**	**(20 g)**	**(5 vials x 5 mL)**	**(5 vials x 5 mL)**	**(5 X 91 g)**	**(4x70 g)**	**(5 ampoules)**	**(5 x 1 mL)**
Element (Concentrations are in mg/kg, unless noted by a single asterisk for mass fraction, in %)												
(Z)-11-Eicosenoic Acid (C20:1 n-9)(Gondoic Acid)											0.353	
Docosanoic Acid (C22:0)(Behenic Acid)											0.126	
Tetracosanoic Acid (C24:0)(Lignoceric Acid)											0.0242	

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